

USSN 09/215,095

STATUS OF THE CLAIMS

Claims 1- 65 (cancelled)

66. (Previously presented) A layered granule having a single seed particle, layers of the layered granule comprising:

- a) a protein matrix layered over the seed particle wherein said matrix comprises a mixture of a protein solution or slurry and a solution which is a combination of a sugar or sugar alcohol and a polysaccharide structuring agent; and
- b) a barrier layer or coating layer.

67. (Previously presented) The granule of claim 66, wherein the matrix is a mixture of a protein solution or slurry and a solution of a combination of a sugar and a polysaccharide structuring agent.

68. (Previously presented) The granule of claim 67, wherein the sugar is selected from the group consisting of glucose, fructose, raffinose, maltose, lactose, trehalose, and sucrose.

69. (Previously presented) The granule of claim 68, wherein the sugar is sucrose.

70. (Withdrawn)

71. (Withdrawn)

72. (Previously presented) The granule of claim 66, wherein the polysaccharide structuring agent is selected from the group consisting of starch, modified starch, cellulose, modified cellulose, carrageenan, gum arabic, xanthan gum, locust bean gum, and guar gum.

73. (Previously presented) The granule of claim 72, wherein the polysaccharide structuring agent is a starch or modified starch.

74. (Previously presented) The granule of claim 66, wherein the protein solution or slurry is an enzyme.

USSN 09/215,095

75. (Previously presented) The granule of claim 74, wherein said enzyme is selected from the group consisting of proteases, amylases, lipases, and cellulases.

76. (Previously presented) The granule of claim 74, wherein the enzyme is mixed together with a solution of a sugar and a polysaccharide structuring agent.

77. (Withdrawn)

78. (Previously presented) The granule of claim 66 having a coating layer over the protein matrix.

79. (Previously presented) The granule of claim 78, wherein the coating layer is selected from the group consisting of polyvinyl alcohol, polyvinyl pyrrolidone, cellulose derivatives, polyethylene glycol, polyethylene oxide, chitosan, gum arabic, xanthan and carrageenan.

80. (Previously presented) The granule of claim 79, wherein the coating layer comprises a cellulose derivative.

81. (Previously presented) The granule of claim 80, wherein said cellulose derivative is selected from the group consisting of methylcellulose, hydroxypropyl methylcellulose, hydroxycellulose, ethylcellulose, carboxymethyl cellulose, and hydroxypropyl cellulose.

82. (Previously amended) The granule of claim 66 wherein the protein matrix further comprises a synthetic polymer selected from the group consisting of polyethylene oxide, polyvinyl alcohol, polyvinyl pyrrolidone, polyethylene glycol and polyethylene oxide/polypropylene oxide.

USSN 09/215,095

83. (Previously presented) A layered enzyme granule having a single seed particle, the granule comprising:

a) an enzyme matrix layered over the seed particle wherein said matrix is 20 to 80% by weight of the layered granule and comprises an enzyme solution or slurry mixed together with an aqueous solution of a sugar and a polysaccharide structuring agent, said enzyme solution or slurry selected from the group consisting of proteases, amylases, lipases and cellulases and said polysaccharide structuring agent selected from the group consisting of starch, modified starch, cellulose, modified cellulose, carrageenan, gum Arabic, xanthan gum, locust bean gum, and guar gum; and

b) a barrier or coating layer.

84. (Previously presented) The enzyme granule of claim 83 further comprising a coating layer over the enzyme matrix.

85. (Previously presented) The granule of claim 83, wherein said sugar is selected from the group consisting of glucose, fructose, raffinose, maltose, lactose, trehalose and sucrose.

86. (Previously presented) The granule of claim 85, wherein the sugar is sucrose and the polysaccharide is starch or modified starch.

87. (Previously presented) The granule of claim 83, wherein the enzyme solution or slurry is a protease.

88. (Previously presented) The granule of claim 83, wherein the enzyme solution or slurry is a cellulase.

89. (Previously presented) The granule of claim 66 wherein a ratio of the sugar or sugar alcohol to the polysaccharide structuring agent in the protein matrix is 0.1 to 90% by weight of the protein matrix.

90. (Previously presented) The granule of claim 83 wherein a ratio of the sugar to the polysaccharide structuring agent in the enzyme matrix is 0.1 to 90% by weight of the enzyme matrix.

USSN 09/215,095

91. (Previously presented) The granule of claim 66 having a barrier layer over the protein matrix layer.
92. (Previously presented) The granule of claim 91 wherein the barrier layer is selected from the group consisting of inorganic salts, organic salts, and the combination of the sugar or sugar alcohol and structuring agent.
93. (Previously presented) The granule of claim 66 wherein the barrier layer is an inorganic salt.
94. (Previously presented) The granule of claim 66 wherein the barrier layer is magnesium sulfate.
95. (Previously presented) The granule of claim 83 having a barrier layer over the enzyme matrix layer.
96. (Previously presented) The granule of claim 95 wherein the barrier layer is selected from the group consisting of inorganic salts, organic salts, and the combination of the sugar and structuring agent.
97. (Previously presented) The granule of claim 83 wherein the barrier layer is an inorganic salt.
98. (Previously presented) The granule of claim 83 wherein the barrier layer is magnesium sulfate.
99. (Previously presented) The granule of claim 66 having a barrier layer over the protein matrix and a coating layer over the barrier layer.
100. (Previously presented) The granule of claim 83 having a barrier layer over the enzyme matrix and a coating layer over the barrier layer.

USSN 09/215,095

101. (Previously presented) The granule of claim 83 wherein the enzyme solution or slurry is an amylase.

102. (Previously presented) The granule of claim 66 wherein the barrier layer is an inorganic salt and titanium dioxide.

103. (Previously presented) The granule of claim 83 wherein the barrier layer is an inorganic salt and titanium dioxide.

104. (Previously presented) The granule of claim 66 having a barrier layer and a coating layer.

105. (Previously presented) The granule of claim 83 having a barrier layer and a coating layer.

106. (Previously presented) A layered granule comprising:

- a) a single seed particle;
- b) an enzyme matrix layered over the seed particle wherein said matrix layer includes at least one enzyme solution or slurry mixed together with an added solution of a combination of a sugar and at least one polysaccharide structuring agent, the enzyme matrix layer constitutes from about 20 to 80% by weight of the layered granule;
- c) a barrier salt layer over the enzyme matrix layer; and
- d) an outer coating over the barrier salt layer.

107. (Previously presented) The layered granule of claim 106 wherein the sugar is sucrose; the polysaccharide structuring agent is one or more starches, the barrier salt layer is magnesium sulfate, and the outer coating is selected from one or more of polyvinyl alcohol, titanium dioxide and a surfactant.

USSN 09/215,095

108. (Withdrawn) A layered granule comprising:
- a core;
 - a protein matrix layer surrounding the core, the protein matrix comprising an admixture of (a) a solution or slurry of a protein and (b) a solution of a sugar or sugar alcohol and a polysaccharide structuring agent;
 - a barrier layer surrounding the protein matrix layer; and
 - a coating layer surrounding the barrier layer.